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PATENT  
Attorney Docket No. 80718-612866  
Client Ref. No.

KILPATRICK TOWNSEND & STOCKTON LLP

By:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Yehuda Ivri et al.

Application No.: 09/551,408

Filed: April 18, 2000

For: METHODS AND APPARATUS  
FOR STORING CHEMICAL  
COMPOUNDS IN A PORTABLE  
INHALER

Confirmation No. 2446

Examiner: Clinton T. Ostrup

Technology Center/Art Unit: 3771

APPELLANTS' BRIEF UNDER  
37 CFR §41.37

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Commissioner:

Further to the final Office Action mailed June 15, 2010 and the Notice of Appeal  
filed herewith for the above-referenced application, Appellants submit this Brief on Appeal.

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### **1. REAL PARTY IN INTEREST**

The real party in interest is Novartis Pharma AG.

### **2. RELATED APPEALS AND INTERFERENCES**

No other appeals or interferences are known which will directly affect, are directly affected by, or have a bearing on the Board decision in this appeal.

### **3. STATUS OF CLAIMS**

Claims 40-43 stand rejected and are the subject of this appeal.

Claims 1-39 have been canceled.

Claims 44-56 have been withdrawn.

No claims stand allowed.

### **4. STATUS OF AMENDMENTS**

No amendments have been filed subsequent to the final Office Action of June 15, 2010.

### **5. SUMMARY OF CLAIMED SUBJECT MATTER**

The application contains a single independent claim, claim 40. Detailed citations to representative portions of the specification, indicating where the elements of the independent claims are disclosed, are given below.

Claim 40 recites a method of aerosolizing a liquid. (Abstract).

The method comprises the step of electroforming a vibratable aperture plate (p. 12 lines 19-21) made of palladium or a palladium alloy (p. 12 lines 20-21), the aperture plate having a front surface and a rear surface (p. 12 lines 15-16), the palladium or palladium alloy aperture plate being electroformed to form a plurality of tapered conical-shaped apertures extending from the rear surface to the front surface, the plurality of apertures being tapered to narrow from the rear surface to the front surface (p. 12 lines 15-16), the aperture plate further being formed to have a dome shape (p. 6 lines 30-31, Figure 3).

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The method further comprises mounting the vibratable aperture plate upon a support member wherein substantially all of a vibratable portion of the aperture plate not directly mounted to the support member comprises the dome shape. (Figure 3).

The method further comprises providing a fluid at the rear surface of the aperture plate. (p. 14 lines 19-20).

The method further comprises vibrating the aperture plate to eject the fluid through the plurality of tapered conical-shaped apertures. (p. 6 line 33 – p. 7 line 1, Figures 10 and 11).

#### **6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

- A. Whether claim 40 is unpatentable under 35 U.S.C. § 103(a) over publication WO 97/07896 of Ivri et al. ("Ivri") in view of U.S. Patent No. 5,487,378 to Robertson et al. ("Robertson").
- B. Whether claims 41-43 are unpatentable under 35 U.S.C. § 103(a) over Ivri and Robertson, and further in view of U.S. Patent No. 4,911,798 to Abys et al. ("Abys").

#### **7. ARGUMENT**

- A. Whether claim 40 is unpatentable over Ivri in view of Robertson

The final Office Action mailed June 15, 2010 rejects claim 40 as being allegedly unpatentable over Ivri in view of Robertson. The rejection is improper because the Office Action has not made out a *prima facie* case of obviousness with respect to claim 40. Specifically, the references, even in combination, do not disclose all of the elements of claim 40.

Claim 40 recites in part *electroforming a vibratable aperture plate made of palladium or a palladium alloy*.

The Office Action admits that Ivri does not teach electroforming the vibratable aperture plate of palladium or a palladium alloy. (Office Action p. 3). The Office Action cites Robertson as teaching "electroforming a metal or metal alloy plate", and then asserts that it "would have been obvious ... to have modified the method of nebulizing a liquid, as disclosed by Ivri, by electroforming a metal or metal alloy plate, as taught by Robertson, with the dome

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shape having tapered apertures, as disclosed by Ivri, in order to provide these surfaces with a protective layer to prevent corrosion....” (Office Action p. 3).

Appellants respectfully note that the Office Action does not point to any portion of Robertson that discloses an aperture plate made of palladium or a palladium alloy. In fact, neither Ivri nor Robertson mentions palladium or a palladium alloy. Thus, Ivri and Robertson, even in combination, do not teach or suggest each and every limitation of claim 40, and the Office Action has not made out a *prima facie* case of obviousness with respect to claim 40. Claim 40 is believed allowable over Ivri and Robertson.

In response to Appellants’ previous arguments to that effect, the final Office Action argues in part that “Robertson teaches metals and metal alloys such as nickel for electroforming a nozzle array and specifically teaches using nickel”, and that “[p]alladium and palladium alloys are well know materials for electroforming....” (Office Action p. 6). The Office Action also notes that palladium is in the same group as nickel on the periodic table of elements, and contends that it “would therefore be expected to have similar electroforming properties because elements in a group have similar configurations of the outermost electron shells and most chemical properties are dominated by the orbital location of the outermost electron.” (Office Action p. 6). On this basis, the Office Action concludes that “using palladium or a palladium alloy, which have been known in the art for electroforming, would be obvious to the skilled artisan ... as this would be the simple substitution of one known element for another that are in the same group or family in the periodic table.” (Office Action p. 6).

Appellants respectfully submit that the reasoning offered by the Office Action is based on speculation and hindsight reconstruction, and therefore does not supply a rational underpinning for the rejection.

B. Whether claims 41-43 are unpatentable over Ivri in view of Robertson, and further in view of Abys.

The final Office Action rejects claims 41-43 under 35 U.S.C. §103(a) as being allegedly unpatentable over Ivri in view of Robertson, as applied to claim 40 above, and further in view of Abys.

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Claims 41-43 depend from claim 40 and add further limitations. As is explained above, claim 40 is believed allowable over Ivri and Robertson because Ivri and Robertson do not teach or suggest each and every limitation of claim 40. Abys does not cure the deficiencies of Ivri and Robertson, and claims 41-43 are believed allowable at least by virtue of their dependence from an allowable base claim. Specifically, neither Ivri, Robertson, nor Abys teaches electroforming from palladium or a palladium alloy.

Claims 41-43 recite particular alloys for the aperture plate, specifically *palladium cobalt* (claim 41), *palladium nickel* (claim 42), and *about 80% palladium and about 20% nickel* (claim 43).

In support of the rejection of claims 41-43, the Office Action cites Abys as teaching that "palladium metal and alloys are used as protective coatings" and that "palladium-nickel and palladium-cobalt alloys are advantageous used in electroplating...." (Office Action p. 4). The Office Action asserts that "it would have been obvious ... to have used palladium-nickel or palladium-cobalt alloys, as taught by Abys, in order to electroform the aperture plate, as taught by Robertson, with a dome shape having tapered apertures therethrough, as disclosed by Ivri, with a **protective layer**, using a well known palladium alloy for its art recognized purposes, which is to **provide a protective layer** using metal alloys...." (Office Action pp. 4-5, emphasis added).

Appellants respectfully note that electroplating is not the same as electroforming, and that Appellants do not use palladium or a palladium alloy to simply form a protective layer. Appellants electroform the entire aperture plate of palladium or a palladium alloy. The combined references, even in combination, do not teach or suggest all of the limitations of claims 41-43, and the Office Action has not provided a rationale to explain why one of skill in the art at the time the invention was made would have chosen to electroform the entire aperture plate from palladium or a palladium alloy, rather than simply using electroplating as is described by Abys. Claims 41-43 are therefore believed allowable over Ivri, Robertson, and Abys.

In response to Appellants' previous arguments, the Office Action argues in part that the rejection is based on a combination of references, with Robertson being relied upon to teach electroforming, and Abys "only used to teach the particular metals palladium-cobalt and

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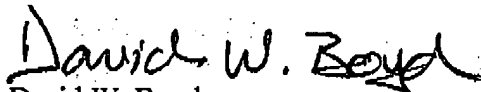
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palladium-nickel, and Abys gives specific reasons for using these metals (i.e. palladium-nickel and palladium-cobalt alloys are advantageous used in electroplating because the plating potential for the pairs of metals ... are close together and well removed from the hydrogen evolution potential)." (Office Action p. 7). Appellants respectfully note that this reasoning only explains why these alloys are suitable for electroplating, and still does not explain why one of skill in the art would have thought to electroform the entire aperture plate from palladium or a palladium alloy, rather than simply using electroplating. The Office Action therefore has not provided a proper rational basis for the rejection.

#### 8. CONCLUSION

For these reasons, it is respectfully submitted that the rejections should be reversed.

Respectfully submitted,



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## 9. CLAIMS APPENDIX

1-39 (canceled)

40. (Previously presented) A method of aerosolizing a liquid, comprising the steps of:

electroforming a vibratable aperture plate made of palladium or a palladium alloy, the aperture plate having a front surface and a rear surface, the palladium or palladium alloy aperture plate being electroformed to form a plurality of tapered conical-shaped apertures extending from the rear surface to the front surface, the plurality of apertures being tapered to narrow from the rear surface to the front surface, the aperture plate further being formed to have a dome shape, mounting the vibratable aperture plate upon a support member wherein substantially all of a vibratable portion of the aperture plate not directly mounted to the support member comprises the dome shape; providing a fluid at the rear surface of the aperture plate; and vibrating the aperture plate to eject the fluid through the plurality of tapered conical-shaped apertures.

41. (Previously presented) The method of claim 40, wherein:  
the electroforming step is carried out with the aperture plate being palladium cobalt.

42. (Previously presented) The method of claim 40, wherein:  
the electroforming step is carried out with the aperture plate being palladium nickel.

43. (Previously presented) The method of claim 40, wherein:  
the electroforming step is carried out with the aperture plate being about 80% palladium and about 20% nickel.



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44. (Withdrawn) An apparatus for delivering aerosolized droplets of fluid to the respiratory system of a user, comprising:

a vibratory apertured element having a liquid receiving face; an aerosol emission face, and a plurality of tapered apertures therethrough, the apertures tapering from wide to narrow in the direction from the liquid receiving face to the aerosol emission face;

wherein the vibratory apertured element comprises an element comprised of a palladium-nickel alloy; and

wherein the apertures are configured to emit liquid droplets upon vibration of the vibratory apertured element.

45. (Withdrawn) The apparatus of claim 44, wherein the palladium-nickel alloy is comprised of about 80 percent of palladium and about 20 percent of nickel.

46. (Withdrawn) The apparatus of claim 45, wherein the palladium-nickel alloy is substantially comprised of about 80 percent of palladium and about 20 percent of nickel.

47. (Withdrawn) The apparatus of claim 46, wherein the alloy consists essentially of about 80 percent of palladium and about 20 percent of nickel.

48. (Withdrawn) The apparatus of claim 44, wherein the vibratory apertured element consists essentially of a unitary solid alloy element consisting of about 80 percent of palladium and about 20 percent of nickel.

49. (Withdrawn) The apparatus of claim 48, wherein the unitary solid alloy element consists essentially of about 80 percent of palladium and about 20 percent of nickel.

50. (Withdrawn) An apparatus for delivering aerosolized droplets of fluid to the respiratory system of a user, comprising:

a vibratory apertured element having a liquid receiving face; an aerosol emission face, and a plurality of tapered apertures therethrough, the apertures tapering

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from wide to narrow in the direction from the liquid receiving face to the aerosol emission face;

wherein the vibratory apertured element comprises an element comprised of a palladium-nickel alloy; and

wherein the apertures have a diameter of between about 1 micron and about 6 microns at the aerosol emission face.

51. (Withdrawn) The apparatus of claim 50, wherein the apertures have a diameter of about 1 micron to about 5 microns at the aerosol emission face.

52. (Withdrawn) The apparatus of claim 50, wherein the palladium-nickel alloy is comprised of about 80 percent of palladium and about 20 percent of nickel.

53. (Withdrawn) The apparatus of claim 52, wherein the palladium-nickel alloy is substantially comprised of about 80 percent of palladium and about 20 percent of nickel.

54. (Withdrawn) The apparatus of claim 53, wherein the alloy consists essentially of about 80 percent of palladium and about 20 percent of nickel.

55. (Withdrawn) The apparatus of claim 50, wherein the vibratory apertured element consists essentially of a unitary solid alloy element consisting of about 80 percent of palladium and about 20 percent of nickel.

56. (Withdrawn) The apparatus of claim 55, wherein the unitary solid alloy element consists essentially of about 80 percent of palladium and about 20 percent of nickel.

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**10. EVIDENCE APPENDIX**

None.

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**11. RELATED PROCEEDINGS APPENDIX**

None.